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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,587	07/20/2001	Randal G. Martin	062986.0214	1407

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EXAMINER

HAILE, FEBEN

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 07/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/910,587	MARTIN ET AL.	
	Examiner	Art Unit	
	Feben M. Haile	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Response to Amendment

1. In view of applicant's amendment filed May 9, 2005, the status of the application is still pending with reference to claims 1-18.
2. The amendment filed has been considered but is ineffective to overcome the rejection of claims 1-18.

Regarding claim 1 on page 2 of the amendment, the addition: generating a first sequence number; inserting the first sequence number into the data packet; transferring a subsequent data packet generated in response to a second flow control credit over a different one of the plurality of channels, the subsequent data packet including a second sequence number fails to further limit the scope of the claim. Doshi et al. (US 5,222,061) discloses that the sequence number generator advances the value of a current count to a next succeeding value (**column 3 lines 10-14**) and that the controller sends the data packet to the receiver via the communications path, where the communications path may be a single data transmission link or a number of data links (**figure 1 units 121 & 122 and column 3 lines 30-35**). Forin (US 6,594,701) discloses that the receiver communicates credits to the sender to control the flow of data packets (**column 11 lines 62-64**).

Regarding claim 6 on page 3 of the amendment, the addition: a sequence channel controller operable to receive a data packet in response to a first flow control

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credit, the request channel controller operable to insert the first sequence number into the data packet, the request channel controller operable to receive a subsequent data packet in response to a second flow control credit, the request channel controller operable to insert a second sequence number into the subsequent data packet the request channel controller operable to select a different one of the plurality of request channels, the request controller operable to transfer the subsequent data packet over the different one of the plurality of request channels fails to further limit the scope of the claim. Doshi et al. (US 5,222,061) discloses that the sequence number generator advances the value of a current count to a next succeeding value (**column 3 lines 10-14**) and that the controller sends the data packet to the receiver via the communications path, where the communications path may be a single data transmission link or a number of data links (**figure 1 units 121 & 122 and column 3 lines 30-35**). Forin (US 6,594,701) discloses that the receiver communicates credits to the sender to control the flow of data packets (**column 11 lines 62-64**).

Regarding claim 11 on page 4 of the amendment, the addition: receiving a plurality of data packets over different ones of a plurality of channels fails to further limit the scope of the claim. Doshi et al. (US 5,222,061) discloses that the controller sends the data packet to the receiver via the communications path, where the communications path may be a single data transmission link or a number of data links (**figure 1 units 121 & 122 and column 3 lines 30-35**).

Regarding claim 15 on page 5 of the amendment, the addition: a write port controller operable to receive a plurality of data packets in a non-sequential order over a

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different ones of a plurality of channels fails to further limit the scope of the claim because claim. Doshi et al. (US 5,222,061) discloses that the controller sends the data packet to the receiver via the communications path, where the communications path may be a single data transmission link or a number of data links (**figure 1 units 121 & 122 and column 3 lines 30-35**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doshi et al. (US 5,222,061), hereinafter referred to as Doshi and in view of Forin (US 6,594,701).

Regarding claim 1, Doshi discloses the limitations: generating a sequence number (figure 1 unit 125 and column 3 lines 10-16); inserting the sequence number into the data packet (figure 1 unit 120 and column 3 lines 17-20); selecting one of a plurality of channels to transfer the data packet (figure 1 unit 120 and column 3 lines 29-35); transferring the data packet over the selected one of the plurality of channels (column 3 lines 29-35).

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Doshi, however, fails to teach the limitation: generating a data packet in response to a flow control credit.

Forin discloses a sending device that uses a credit message from a receiver to control the flow of data packets (column 11 lines 62-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doshi's transmitter and receiver to incorporate a credit-based flow control system and method as taught by Forin. The motivation being to eliminate data being lost, data being overwritten, and/or data being retransmitted due to the transmitter sending too much data to the receiver.

Regarding claim 2, Doshi discloses the limitations: incrementing the sequence number in response to transfer of the data packet (column 3 lines 12-16).

Regarding claim 3, Doshi fails to disclose the limitations: decrementing a number of flow control credits in response to transfer of the data packet. This is taught by Forin (column 12 lines 50-55). It would have been obvious to combine Doshi and Forin for the same reasons in claim 1.

Regarding claim 4, Doshi fails to disclose the limitations: receiving a reply, the reply including flow control credit; incrementing a number flow control credits in response to receipt of the reply. This is taught by Forin (column 12 lines 50-55). It would have been obvious to combine Doshi and Forin for the same reasons in claim 1.

Regarding claim 5, Doshi discloses a sequence number generator, which may be a counter, that generates a sequence number (column 3 lines 10-12). It is inherently known that once a counter reaches its maximum number it will reset itself to the original

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number. Doshi thus discloses the limitation: resetting the sequence number to an initial value.

Regarding claim 6, Doshi discloses the limitations: sequence number unit operable to generate a sequence number (figure 1 unit 125 and column 3 lines 10-12); the request channel controller operable to insert the sequence number into the data packet (figure 1 unit 120 and column 3 lines 17-20), the request channel controller operable to select one of plurality request channels (column 3 lines 29-35), the request channel controller operable to transfer the data packet over the selected one of the plurality of request channels (column 3 lines 29-35).

Doshi, however, fails to teach the limitation: a request channel controller operable to receive a data packet in response to a flow control credit.

Forin discloses a sending device that utilizes a credit message to determine the size and order of data packets to be sent to the receiver (column 3 lines 26-28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doshi's transmitter and receiver to incorporate a credit-based flow control system and method as taught by Forin. The motivation being more reliable transmissions by allowing the transmitter to send the correct amount of data to the receiver so that data will not be lost, overwritten, and/or retransmitted.

Regarding claim 7, Doshi discloses the limitations: wherein the request channel controller is operable to generate an increment signal (column 3 lines 12-16), the sequence number unit operable to advance the sequence number in response to the increment signal (column 3 lines 12-16).

Regarding claim 8, Doshi fails to disclose the limitations: a credit counter unit operable to maintain a number of flow control credits. This is taught by Forin (column 12 lines 4-7). It would have been obvious to combine Doshi and Forin for the same reasons in claim 6.

Regarding claim 9, Doshi discloses the limitations: wherein the request channel controller is operable to generate an increment signal (column 3 lines 12-16).

In a flow control system, it is inherently known that data transfer between a sender and receiver is increased or decreased according to an indication of a buffer size, therefore allowing more reliable transmissions. Doshi thus discloses the limitation: wherein a request channel controller is operable to generate a decrement signal.

Doshi, however, fails to teach the limitation: the credit counter unit operable to reduce the number of flow control credits in response to the decrement signal.

Forin discloses the limitation: a sender constructing data packets based on credits indicative of buffer sizes sent from a receiver (column 12 lines 50-55).

It would have been obvious to combine Doshi and Forin for the same reasons in claim 6.

Regarding claim 10, Doshi fails to disclose the limitations: wherein the credit counter unit is operable to increment the number of flow control credits in response to receipt reply including a flow control credit reply. This is taught by Forin (column 12 lines 50-55). It would have been obvious to combine Doshi and Forin for the same reasons in claim 6.

Regarding claim 11, Doshi discloses the limitations: receiving a plurality of data packets (see figure 1 unit 200 and column 3 lines 63-65), each data packet including a sequence number (column 3 lines 17-20), the plurality of packets being received in a non-sequential order (column 4 lines 5-14); storing each of the plurality of data packets in a buffer according to its sequence number (figure 1 unit 210 and column 4 lines 5-8); reading the plurality of data packets in sequential order from the buffer according to the sequence number (column 4 lines 8-14).

Doshi, however, fails to teach the limitation: generating a flow control credit in response to each of the plurality of data packets being read from the buffer.

Forin discloses a sending device that uses a credit message from a receiver to control the flow of data packets (column 11 lines 62-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doshi's transmitter and receiver to incorporate a credit-based flow control system and method as taught by Forin. The motivation being to eliminate data being lost or overwritten due to the transmitter sending too much data to the receiver.

Regarding claim 12, Doshi discloses the limitations: setting a valid bit in response to a data packet being stored in a portion of the buffer associated with the valid bit (column 4 lines 20-25).

Regarding claim 13, Doshi discloses a controller that sets a binary value in correspondence with the sequence number in the packet (column 4 lines 20-25). It is inherently known that the bit will reset itself once the state of that packet is completed.

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Doshi thus discloses the limitation: reading a data packet from the buffer in response to the valid bit; clearing the valid bit in response to a data packet being read from the associated portion of the buffer.

Regarding claim 14, Doshi discloses the limitations: wherein the sequence number is used to directly index into the buffer (column 4 lines 5-8).

Regarding claim 15, Doshi discloses the limitations: write port controller operable to receive a plurality of data packets in a non-sequential order (figure 1 unit 205 and column 4 lines 5-14), each data packet including a sequence number (figure 1 unit 205 and (column 3 lines 17-20); a re-order buffer operable to store the plurality of data packets (figure 1 unit 210 and column 4 lines 5-8), the write port controller operable to place each data packet into the re-order buffer in response to its sequence number (column 4 lines 5-8); a valid unit operable to generate a valid bit for each portion of the re-order buffer (figure 1 unit 203 and column 4 lines 20-25), the valid bit unit operable to set a valid bit for a corresponding portion of the re-order buffer in response to a data packet being stored therein (figure 1 unit 203 and column 4 lines 20-25); and a read port controller operable to provide data packets in a sequential order in response to a valid bit being set (figure 1 unit 250 and column 4 lines 5-14).

Regarding claim 16, Doshi discloses the limitations of base claim 15.

Doshi, however, fails to teach the limitation: wherein the read port controller is operable to clear the valid bit upon providing a data packet from the re-order buffer

However, Forin discloses a credit list builder/communicator that generates credit lists that a sender uses to control the flow of data packets to a receiver (column 11 lines 62-64 & column 12 lines 4-7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Doshi's transmitter and receiver to incorporate a credit-based flow control system and method as taught by Forin. The motivation being more reliable transmissions by allowing the transmitter to send the correct amount of data to the receiver so that data will not be lost, overwritten, and/or retransmitted.

Regarding claim 17, Doshi discloses a controller that sets a binary value in correspondence with the sequence number in the packet (column 4 lines 20-25). It is inherently known that the bit will reset itself once the state of that packet is completed. Doshi thus discloses the limitation: wherein the read port controller is operable to clear the valid bit upon providing a data packet from the re-order buffer.

Regarding claim 18, Doshi discloses the limitations: wherein the write port controller uses the sequence numbers to directly index the re-order buffer (column 4 lines 5-8).

Response to Arguments

4. Applicant's arguments filed May 9, 2005 have been fully considered but they are not persuasive.

On page 7 of the amendment, applicant argues that Doshi et al. et al. (US 5,222,061) receives all packets over the same communication path 121. The examiner

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respectfully disagrees with applicant because Doshi discloses that the controller 120 sends the data packet to receiver 200 via communications path 121, where the communications path may be a single data transmission line or a number of data links 121 & 122 (**column 3 lines 30-35**). It is obvious to one of ordinary skill in the art that these data links are identical and could be used to transmit data on both from either the transmitter to the receiver or the receiver to the transmitter.

On page 7 of the amendment, applicant argues that Doshi et al. et al. (US 5,222,061) receives packets in sequential order. The examiner respectfully disagrees with applicant because Doshi discloses a program at the receiver that determines if the received data packets are in sequence (**figure 4 and column lines 9-20**).

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

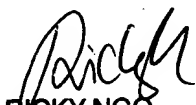
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Feben M. Haile whose telephone number is (571) 272-3072. The examiner can normally be reached on 6:00am - 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JH 01/21/2005


RICKY NGO
PRIMARY EXAMINER

7/14/05